



General Chemistry I

CHEM 1411.001

Course Syllabus: Spring 2018

"Northeast Texas Community College exists to provide responsible, exemplary learning opportunities."

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	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Office Hours	8:00 – 9:20 11:00 – 12:20	8:00 – 9:20	8:00 – 9:20 11:00 – 12:20	8:00 – 9:20	by appointment	via NTCC email

The information contained in this syllabus is subject to change without notice.

Students are expected to be aware of any additional course policies presented by the instructor during the course.

Course Description:

Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering. Topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and introductions to thermodynamics, quantum mechanics, and descriptive chemistry.

Successful completion (final grade of C or better) of CHEM 1411 will allow the student to continue on to CHEM 1412.

Prerequisite: MATH 1314, equivalent, or above.

Required Textbooks & Materials:

Choose Either the Printed Version or Digital Version

General Chemistry: Atoms First (w/ Mastering Chemistry) – Printed Version
McMurry and Fay; 2nd Edition – (ISBN # 032180483X) – Pearson

General Chemistry: Atoms First (w/ Mastering Chemistry) – Digital Version
McMurry and Fay; 2nd Edition – (ISBN # 0321813286) – Pearson

Lab Manual for CHEM 1411 – Experiments in General Chemistry I (v 2.0)
NTCC Printing, only available in NTCC College Store

Lab Safety Glasses/Goggles:

Approved safety glasses are available in the college store, and many safety glasses and safety goggles are also available from online retailers. **Always check with your instructor before purchasing eye protection from somewhere other than the college store.**

Safety glasses may be rented from the instructor for the cost of five (5) points deducted from the experiment grade. **Beginning February 1, students arriving to lab without proper safety glasses will not be allowed to participate in the experiment and will receive a grade of zero for that experiment.**

Scientific Calculator:

A scientific calculator is required for this course. A model TI-30Xa is recommended. You will NOT be allowed to use a graphing calculator, programmable calculator, or cell-phone calculator during any exam in this course.

Student Learning Outcomes: Students will...

1. be able to define the fundamental properties of matter; to classify matter, compounds, and chemical reactions; and to identify trends in chemical and physical properties of the elements using the periodic table;

2. be able to write chemical formulas, to write and balance equations, to use the rules of nomenclature to name chemical compounds, and to define the types and characteristics of chemical reactions;
3. demonstrate the ability to solve stoichiometric problems, to convert units of measure, and to demonstrate dimensional analysis skills;
4. obtain and introductory understanding of quantum mechanics, be able to apply the octet rule, draw resonance structures, and use VSEPR, valence bond, and molecular orbital theories;
5. use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems, determine the role of energy in chemical reactions, and solve thermochemistry problems; and
6. working in groups, demonstrate competence in the laboratory including the ability to carry out experiments in a safe and efficient manner. Laboratory reports will be used to test the ability of students to work in teams and to interpret and to express chemical concepts in writing.

Lectures & Discussions:

We will cover nearly all of the material in Chapters 0-9 and parts of Chapters 10 and 18 in the text.

Week 1	Scientific Method and Dimensional Analysis
Week 2	Elements and Atomic Structure
Week 3	Chemical Equations, Mass, and Moles
Week 4	Quantum Mechanics
Week 5	Ionic Compounds
Week 6	Periodic Trends and Covalent Bonds
Week 7	Chemical Formulas and Lewis Structures
Week 8	Molecular Geometry and Valence Bond Theory
Week 9	Spring Break
Week 10	Stoichiometry
Week 11	Molecular Orbital Theory and Solution Stoichiometry
Week 12	Chemical Reactions
Week 13	Energy and Enthalpy
Week 14	Hess's Law and Calorimetry
Week 15	Gases
Week 16	Course Review

More detail can be found by examining the Table of Contents in the text and the "Topical Course Outline" posted on Blackboard. You should bring a reliable scientific calculator to class every day. Programmable calculators, graphing calculators, and cell phone calculators are not allowed on exams. Sharing calculators will not be permitted.

Evaluation/Grading Policy:

		<u>Grading Scale</u>
Regular Exams	40%	A = 100 – 90%
Laboratory	30%	B = 89 – 80%
Final Exam	16%	C = 79 – 70%
Mastering Chemistry	7%	D = 69 – 60%
<u>Attendance & Assignments*</u>	<u>7%</u>	F = <59%
Total	100%	

* Assignments include anything assigned by me including, but not limited to quizzes, homework, and problem sets.

Final course grades are rounded to the nearest whole number percent, and letter grades assigned using the above scale.

Grades will be posted to Blackboard throughout the course. Blackboard provides an approximate course grade, which is typically within 2-4% of the actual course grade. The instructor's gradebook is the last word in grades and is what decides the final grades for the course. At any time during the term, students can request to view their grades in the instructor's gradebook or can request a pdf copy of their grades.

Questions about what score on the Final Exam is required to earn a particular grade in the course will not be answered. Please do not ask.

Exams:

Five regular exams will be given during the term on the following dates:

- Exam 1 – Thursday, February 1
- Exam 2 – Monday, February 19 to Friday, February 23 **
- Exam 3 – Thursday, March 8
- Exam 4 – Thursday, April 12 to Wednesday, April 18 **
- Exam 5 – Tuesday, May 1

Exam dates are subject to change, if circumstances dictate it. Ample notice will be given verbally during class, in such instances. Under some rare circumstances students may take exams in advance; this will be decided on a case-by-case basis in advance of the exam date. *There will be no make-up exams for missed exams without authorization **before** the exam date.*

** Exams 2 & 4 will be administered in the NTCC Testing Center. More details will be provided during class.

There will be a **comprehensive Final Exam** held according to the announced final exam schedule. The final exam will be administered in MS 106 and will be limited to the scheduled day and time:

Tuesday, May 8: 1100am – 1250pm

You will need a reliable scientific calculator for all exams. Programmable calculators, graphing calculators, and cell-phone calculators are not allowed. Sharing calculators will not be permitted.

Quizzes and Assignments:

A quiz will be given during nearly all lectures. Students who are absent from class will earn a zero on the quiz, and makeup quizzes will not be given. Assignments throughout this course include anything assigned by the instructor and collected for a grade, excluding exams and laboratory work. This includes, but is not limited to, problems from the text, Mastering Chemistry online homework, and handouts from class. **Students should expect to be working on assignments outside of class on their own time throughout the entire duration of this course.**

This course will be using the Mastering Chemistry online homework system. Details about registering in Mastering Chemistry will be discussed on the first day of class. Assignments and due dates will be listed in the Mastering Chemistry system. Access to a computer with the internet is required for this course.

Laboratory Experiments:

There will be approximately 12 experiments performed during the laboratory periods over the course of the term. Any experiments not completed and turned in will receive a grade of zero. A total of 9 experiments must be completed and receive a non-zero grade in order to pass this course. A schedule of experiments will be provided as a separate handout. In addition, a Lab Practical is required as part of the laboratory portion of the course.

Laboratory Conduct and Attire:

Students are expected to adhere to the guidelines set forth in the “Commitment to Laboratory Safety Pledge” and in the safety video. In addition, students must wear long pants covering their ankles, closed shoes (no exposed skin or sock), shirts that cover their shoulders, and approved safety glasses/goggles at all times in the lab. Long hair should be pulled back. Failure to follow laboratory safety protocols could result in injury to yourself or others and will result in reduction of your laboratory grade. Students not dressed appropriately for lab will be asked to leave and will earn a grade of zero on that experiment.

Laboratory Evaluation/Grading Policy:

The laboratory portion of the course counts towards 30% of your overall course grade.

		Regular Experiments will be graded as follows:	
Regular Experiments	80%	Prelaboratory Assignment	25 points
Lab Practical	10%	<u>Results & Questions</u>	<u>75 points</u>
<u>Behavior, Safety, & Teamwork</u>	<u>10%</u>	Total	100 points
Total	100%		

Prelaboratory Assignments accompany each experiment and must be completed **prior to the laboratory period**. Prelaboratory Assignments are due at the beginning of the laboratory period. Students not turning in a complete Prelaboratory Assignment will

not be allowed to participate in that experiment and will receive a grade of zero on that experiment. Unless otherwise stated, Regular Experiment reports are due at the end of the laboratory period. The Regular Experiment with the lowest score will be dropped during final grade calculations.

Questions in the lab reports that require written answers must be answered in complete, thoughtful sentences. Failure to do so will result in loss of points. Calculations in the lab report must show all of the steps necessary to generate the answers provided, including proper use of units and significant figures. Failure to do so will result in loss of points. Lab reports that are sloppy and/or illegible will not be graded; although, some points may be earned for completing the experiment.

Copying answers on any work will not be tolerated. Prelaboratory Assignments and Lab Reports that appear to have answers copied from other students or internet sources or that appear to have cheated in any way will have substantial point reductions and may receive a grade of zero on that experiment.

Lab Practical Exam:

A Lab Practical is required and is worth 10% of the laboratory grade. This will involve designing and conducting an experiment and writing a lab report about the experiment. More details will be given during the laboratory periods and can be found in the lab manual.

Student Responsibilities/Expectations:

Purchase of a simple, scientific calculator is required.

You must bring a calculator with you to every laboratory period.

You are expected to attend all laboratory periods. There is no make-up experiment, and failing to attend lab will earn you zero points for that experiment. "I have to work" is not an acceptable excuse for missing a laboratory period.

You are expected to attend all classes. Chemistry is too hard to learn on your own. Some lecture material not found in the text may be presented during the semester and will show up on exams.

Use of cell phones is prohibited during class and lab time. Students using phones during class will lose his/her attendance points for the day and will have his/her phone confiscated or be asked to leave class. Students using phones for unapproved purposes during lab will be asked to leave lab and will earn a grade of zero on material for that lab period.

This course covers a lot of material and moves rapidly, so do not fall behind.

For each hour that you spend in class, plan to spend a minimum of three hours out of class studying, reading the book, working on homework problems, etc.

The only way to learn chemistry is through practice. You must be willing to spend time working problems from the textbook to be successful. If you are having problems with a particular topic, it may even be necessary to work problems from the textbook that are not assigned.

At the first sign of trouble you should seek help immediately. I am happy to help you with any of your chemistry coursework. However, if you wait too long to seek help, there is a point where there is nothing I can do to help you.

Work with a classmate on the homework, but do not just copy answers that you do not understand. Your classmate will not be able to help you on the exam.

Do not fall behind in the class. If you do not understand Chapter 1, you will probably not understand Chapter 2 either, because the material for this course is cumulative.

Do not wait until the night before a test to study. Almost everything we cover will come up again later in the class. If you learn the material only long enough to take an exam, you will not recognize it when we encounter it again. This will cause you to struggle through the entire course.

Questions and/or observations are encouraged during the class period. Courteous and attentive behavior is always expected. Students who consistently misbehave can expect to have their grade lowered.

Tuesday, April 12th is the last day to withdraw from the course with a grade of “W”. Students who withdraw from the lecture must also withdraw from the lab. If you stop attending class and fail to officially withdraw, expect to earn a grade of “F” in the course.

Like all colleges, Northeast Texas Community College strives to be a “community of scholars.” Please remember that you and all of the students in this class are pursuing very important goals in your lives. As human beings and as scholars, I expect every student to be courteous and considerate toward other students throughout the lecture and laboratory portions of this course.

As your instructor, I will attend all classes on time and prepared to teach what you are expected to learn each day. I will make a conscientious effort each class period to teach to the best of my ability and to provide you with clear, well-organized explanations of class material. I care deeply about your learning experience and your success in this course. However, that ultimate success does depend largely on you. Your success can be maximized and your potential achieved by making a commitment to meet the following classroom expectations:

- a) Attend ALL classes – physically and mentally. Wherever you are, be all there.
- b) Be on time for class. Attitude is not everything but it is very important. Remain in class for the entire instructional period.
- c) Be an active learner – participate in class. Be attentive, answer questions, and ask questions. Smile, be interested, and act as if you care. (OK, I’ll admit that occasionally things get a little boring; work through that boredom by participating!)
- d) Read ahead. This will help make the next lecture much more effective.
- e) A good student acts like a good student, which includes not sleeping in class, not talking in class, and not reading unrelated material or doing other work in class. All cellular phones must be turned off during class time.
- f) Realize that I do not GIVE grades. You EARN grades based upon your performance. That performance includes turning all assignments in on time. You shouldn’t expect less of me because of my other commitments. I don’t expect less of you because of your other commitments.
- g) Be respectful of yourself, your classmates, and your instructors.
- h) Learning is hard work but it is also invigorating and fun. Work hard and have fun doing so.

NTCC Academic Honesty Statement:

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

Academic Ethics:

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

ADA Statement:

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student’s responsibility to arrange an appointment with a college counselor to obtain a Request for Accommodations form. For more information, please refer to the NTCC Catalog or Student Handbook.

Family Educational Rights and Privacy Act (FERPA):

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children’s educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered “eligible students.” In essence, a parent has no legal right to obtain information concerning the child’s college records without the written consent of the student. In compliance with FERPA, information classified as “directory information” may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student’s name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.